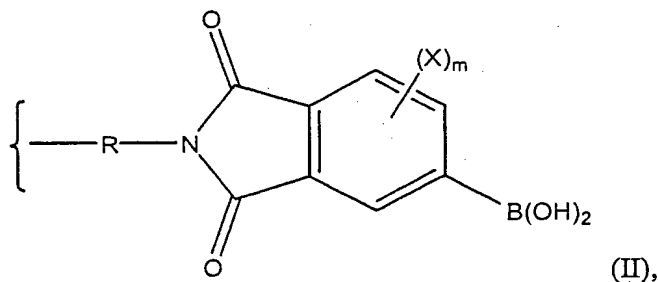
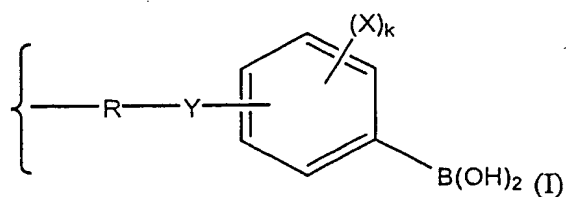


## CLAIMS

What is claimed is:

- 5 1. A polymer substituted with at least one group represented by Structural Formula (I) or (II):

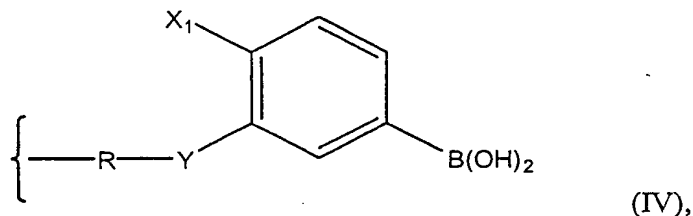
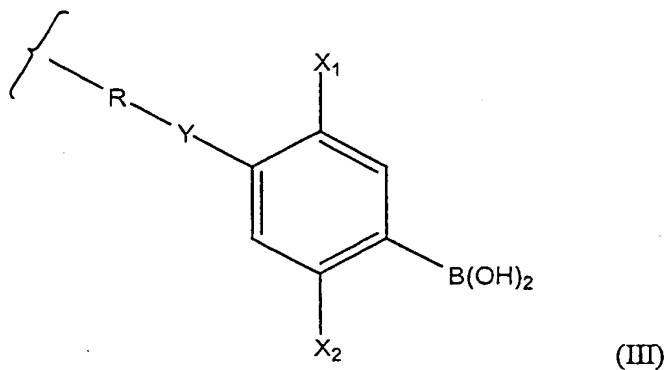


wherein:

- 10 R is a C<sub>6</sub>-C<sub>30</sub> hydrocarbylene group optionally interrupted by one or more heteroatoms selected from the group consisting of NH, S, and O;
- each X is independently a substituted or unsubstituted alkyl group, an electron withdrawing group, or an electron donating group meta to the boronic acid moiety;
- 15 Y is -C(O)Z-, -ZC(O)- or -S(CH<sub>2</sub>)<sub>n</sub>-;
- Z is a bond, CH<sub>2</sub>S, S, NH, or O;
- m is an integer from 0 to 3;
- k is an integer from 0 to 4; and
- 20 n is an integer from 0 to 5.

2. The polymer of Claim 1, wherein each X is independently -H, a halogen, nitrile, ester or sulfone.

3. The polymer of Claim 2, wherein said polymer is substituted with at least one group represented by Structural Formula (III) or (IV):

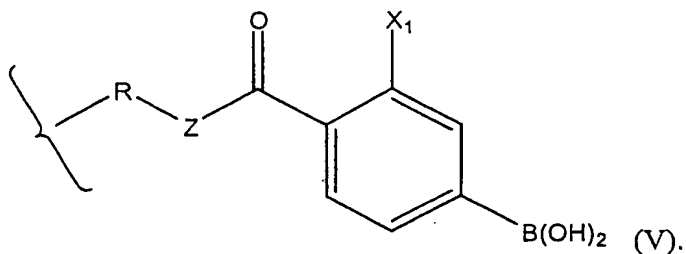


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wherein  $X_1$  and  $X_2$  are each independently  $-H$ , a halogen or nitrile; and  $Y$  is  $-C(O)Z-$  or  $-ZC(O)-$ .

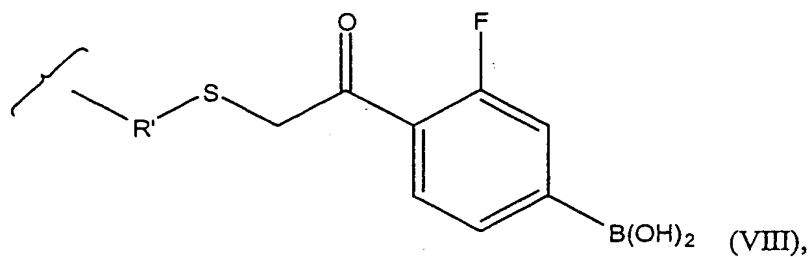
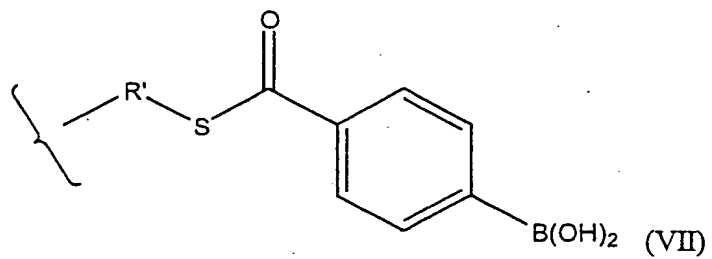
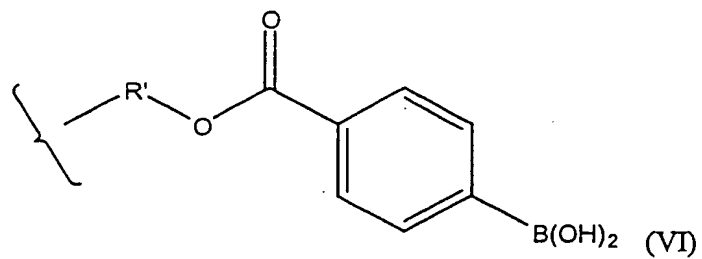
4. The polymer of Claim 3, wherein said polymer is substituted with at least one group represented by Structural Formula (V):

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5. The polymer of Claim 4, wherein said polymer is substituted with at least one group represented by Structural Formula (VI), (VII), or (VIII):

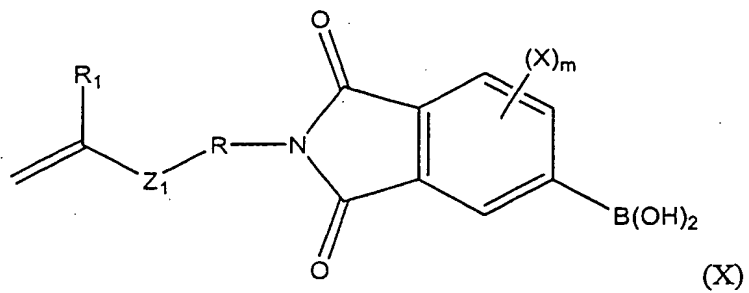
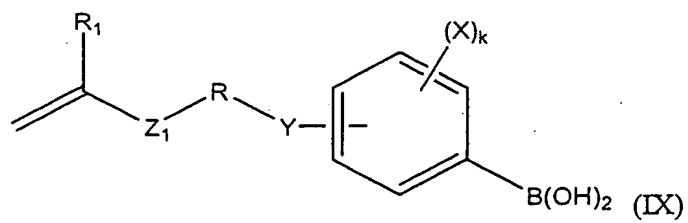
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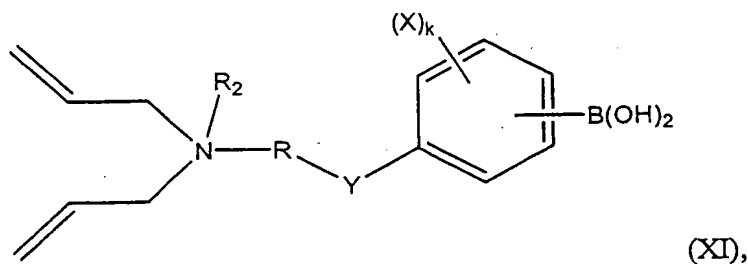
wherein R' is a C6-C12 alkylene group.

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6. A polymer comprised of polymerized monomer units, wherein the monomer unit is represented by Structural Formula (IX), (X), or (XI):



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wherein:

R is a C<sub>6</sub>-C<sub>30</sub> hydrocarbylene group optionally interrupted by one or more heteroatoms selected from the group consisting of NH, S, and O;

R<sub>1</sub> is -H or a lower alkyl group;

R<sub>2</sub> is -H, a lower alkyl group, or is absent;

each X is independently -H, a substituted or unsubstituted alkyl group, or an electron withdrawing group;

Y is -C(O)Z-, -ZC(O)- or -S(CH<sub>2</sub>)<sub>n</sub>-;

Z is a bond, CH<sub>2</sub>S, S, NH, or O;

Z<sub>1</sub> is a bond, -C(O)NH-, -C(O)O-, -C<sub>6</sub>H<sub>4</sub>O-, or -C<sub>6</sub>H<sub>4</sub>NHC(O)-;

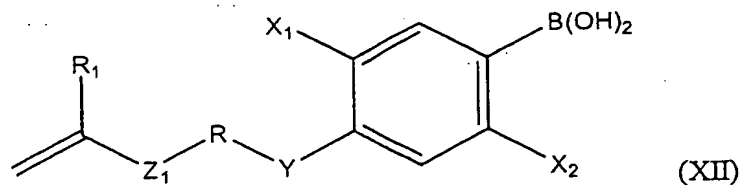
m is an integer from 0 to 3;

k is an integer from 0 to 4; and

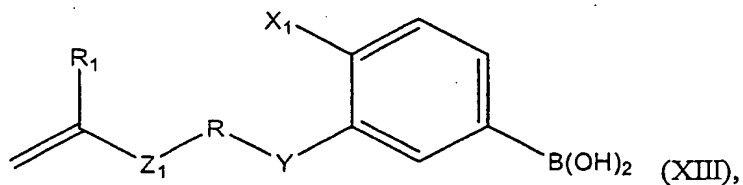
n is an integer from 0 to 5.

7. The polymer of Claim 6, wherein R<sub>1</sub> is -H or -CH<sub>3</sub>; each X is independently -H, a halogen, nitrile, ester or sulfone.

8. The polymer of Claim 7, wherein said polymer is comprised of polymerized monomer units represented by Structural Formula (XII) or (XIII):



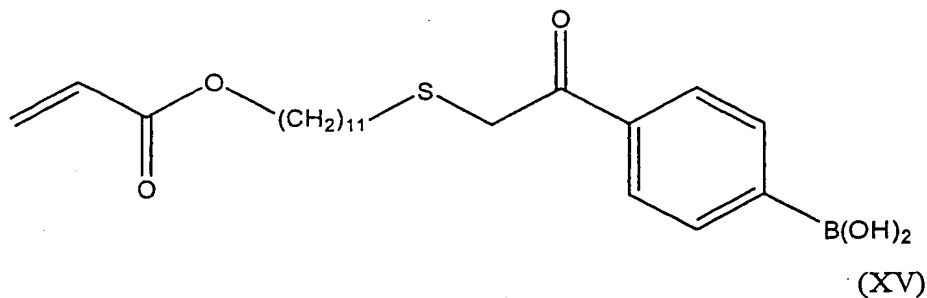
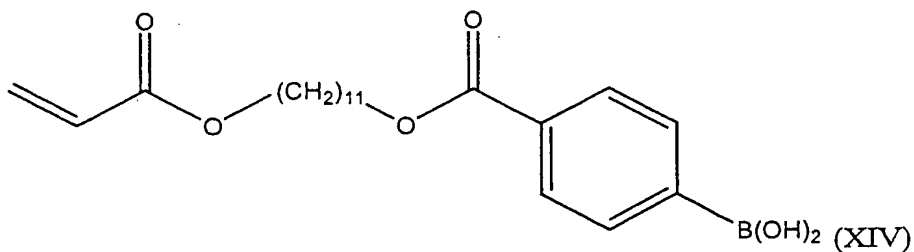
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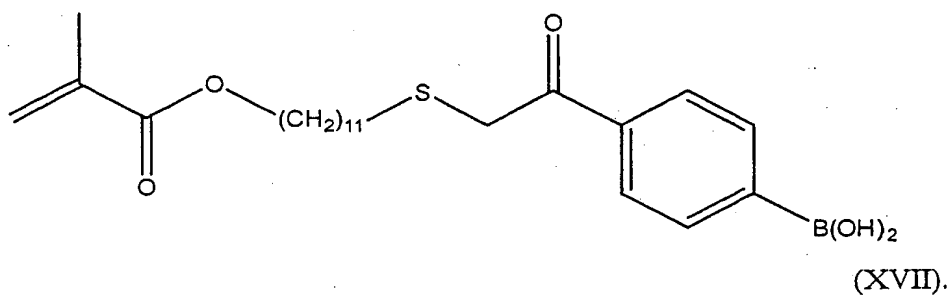
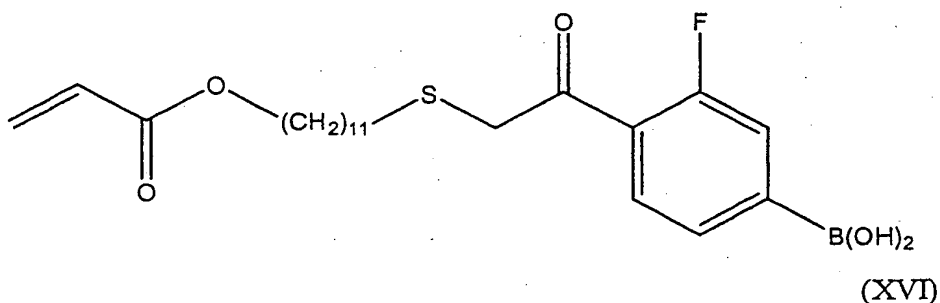
wherein  $X_1$  and  $X_2$  are each independently  $-H$ , a halogen or nitrile; and  $Y$  is  $-C(O)Z-$  or  $-ZC(O)-$ .

- 5    9.    The polymer of Claim 8, wherein  $R$  is a C6-C12 alkylene group;  $R_1$  is  $-H$ ;  $X_1$  and  $X_2$  are each independently  $-H$  or  $-F$ ;  $Y$  is  $-OC(O)-$  or  $-SCH_2C(O)-$ ; and  $Z_1$  is  $-C(O)O-$ .

- 10    10.    The polymer of Claim 9, wherein said polymer is comprised of polymerized monomer units, wherein the monomer unit is represented by Structural Formula (XIV), (XV), (XVI), or (XVII):



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11. The polymer of Claim 1, wherein said polymer is a copolymer.

12. The copolymer of Claim 11, wherein said copolymer comprises a hydrophobic repeat unit.

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13. The copolymer of Claim 11, wherein said copolymer comprises a cationic, anionic, zwitterionic, or neutral hydrophilic repeat unit.

14. The copolymer of Claim 13, wherein said copolymer comprises an anionic repeat unit or a zwitterionic repeat unit.

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15. The copolymer of Claim 14, wherein the anionic repeat unit or zwitterionic repeat unit comprises a sulfonic acid moiety or a salt thereof.

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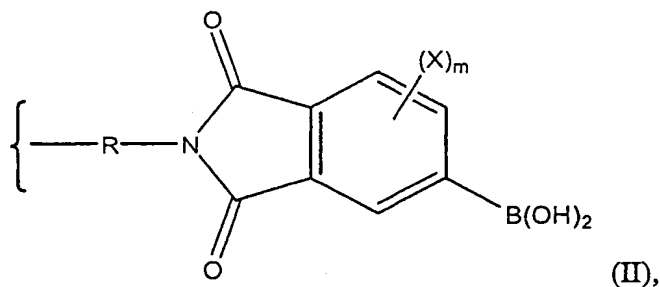
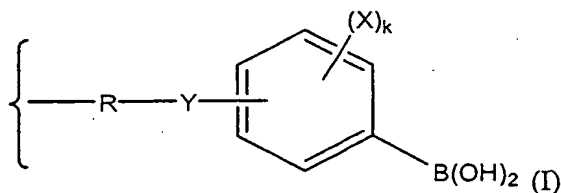
16. The copolymer of Claim 15, wherein the anionic repeat unit is polymerized 2-acrylamido-2-methyl-1-propane sulfonic acid or a salt thereof; polymerized

styrene sulfonic acid or a salt thereof; or polymerized 3-acrylatopropane sulfonic acid or a salt thereof.

- 5           17.    The copolymer of Claim 13, wherein said copolymer comprises a polyether sidechain.
18.    The copolymer of Claim 13, wherein said copolymer is a block copolymer, a graft copolymer, a comb copolymer, a star copolymer, a dendrimer, a hyperbranched polymer, or a crosslinked hydrogel.
- 10           19.    The polymer of Claim 6, wherein said polymer is a copolymer and wherein said copolymer comprises a hydrophobic repeat unit.
20.    The polymer of Claim 6, wherein said polymer is a copolymer and wherein  
15           said copolymer comprises a cationic, anionic, zwitterionic, or neutral hydrophilic repeat unit.
21.    The copolymer of Claim 20, wherein said copolymer comprises an anionic repeat unit or a zwitterionic repeat unit.
- 20           22.    The copolymer of Claim 21, wherein the anionic repeat unit or zwitterionic repeat unit comprises a sulfonic acid moiety or a salt thereof.
23.    The copolymer of Claim 22, wherein the anionic repeat unit is polymerized  
25           2-acrylamido-2-methyl-1-propane sulfonic acid or a salt thereof; polymerized styrene sulfonic acid or a salt thereof; or polymerized 3-acrylato-1-propane sulfonic acid or a salt thereof.
24.    The copolymer of Claim 23, wherein the copolymer is poly{4-(14'-acryloxy-3'-thia-1'-keto)tetradecyl phenyl boronic acid-co-potassium 3-sulfopropyl acrylate}}, poly{4-(14'-methacryloxy-3'-thia-1'-keto)tetradecyl phenyl  
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boronic acid-co-sodium 4-styrene sulfonate}, poly{11-acryloxyundecyl(4-boronato)benzoate-co-sodium 2-acrylamido-2-methyl-1-propanesulfonate}, poly{4-(14'-acryloxy-3'-thia-1'-keto)tetradecyl phenyl boronic acid-co-sodium 2-acrylamido-2-methyl-1-propanesulfonate}, or poly{4-(14'-acryloxy-3'-thia-1'-keto)tetradecyl phenyl boronic acid-co-sodium-4-styrene sulfonate}.

25. A method for treating obesity in a mammal, comprising the step of orally administering to the mammal an effective amount of a polymer substituted with at least one group represented by Structural Formula (I) or (II):



wherein:

R is a C6-C30 hydrocarbylene group optionally interrupted by one or more heteroatoms selected from the group consisting of NH, S, and O;

R<sub>1</sub> is -H or a lower alkyl group;

R<sub>2</sub> is -H, a lower alkyl group, or is absent;

each X is independently -H, a substituted or unsubstituted alkyl group, an electron withdrawing group, or an electron donating group meta to the boronic acid moiety;

Y is -C(O)Z-, -ZC(O)- or -S(CH<sub>2</sub>)<sub>n</sub>-;

Z is a bond, CH<sub>2</sub>S, S, NH, or O;



$Z_1$  is a bond,  $-C(O)NH-$ ,  $-C(O)O-$ ,  $-C_6H_4O-$ , or  $-C_6H_4NHC(O)-$ ;

$m$  is an integer from 0 to 3;

$k$  is an integer from 0 to 4;

$n$  is an integer from 0 to 5.

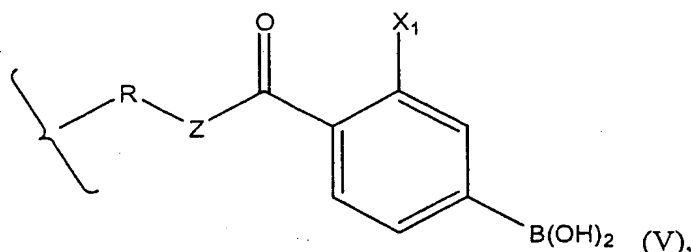
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26. The method of Claim 25, further comprising the step of administering a fat binding polymer to the mammal.

10

27. The method of Claim 25, wherein each  $X$  is independently  $-H$ , a halogen, nitrile, ester or sulfone.

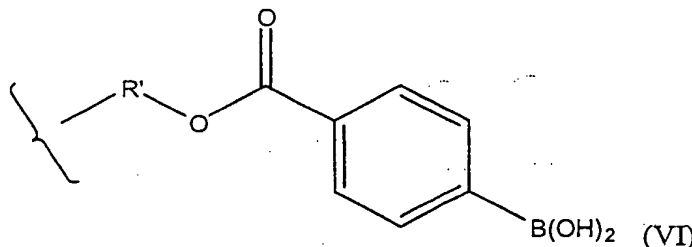
28. The method of Claim 27, wherein said polymer is substituted with at least one group represented by Structural Formula (V):



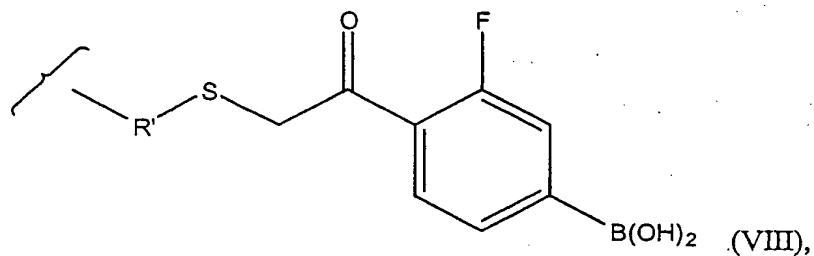
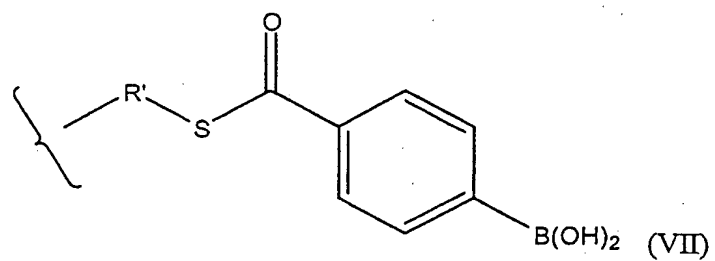
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wherein  $X_1$  is  $-H$ , a halogen, or nitrile and .

29. The method of Claim 28, wherein the polymer is substituted with at least one group represented by Structural Formula (VI), (VII), or (VIII):

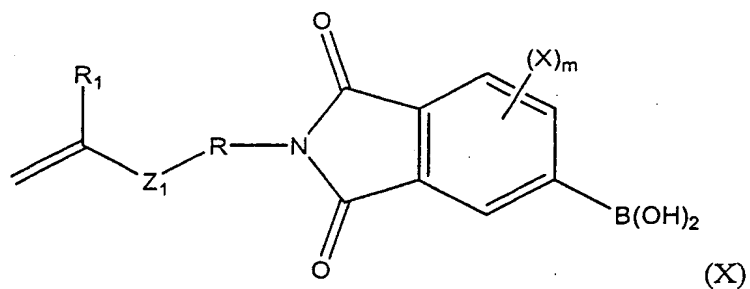
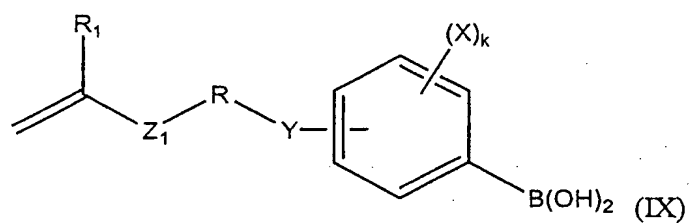


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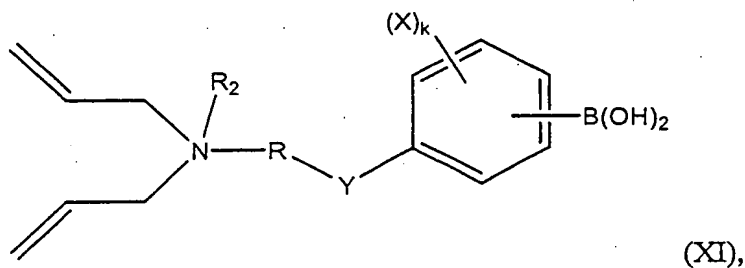


wherein R' is a C6-C12 alkylene group.

- 5 30. A method for treating obesity in a mammal, comprising the step of orally administering to the mammal an effective amount of a polymer comprised of polymerized monomer units, wherein the monomer unit is represented by Structural Formula (IX), (X), or (XI):



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wherein:

R is a C6-C30 hydrocarbylene group optionally interrupted by one or more heteroatoms selected from the group consisting of NH, S, and O;

R<sub>1</sub> is -H or a lower alkyl group;

R<sub>2</sub> is -H, a lower alkyl group, or is absent;

each X is independently -H, a substituted or unsubstituted alkyl group, or an electron withdrawing group;

Y is -C(O)Z-, -ZC(O)- or -S(CH<sub>2</sub>)<sub>n</sub>-;

Z is a bond, CH<sub>2</sub>S, S, NH, or O;

Z<sub>1</sub> is a bond, -C(O)NH-, -C(O)O-, -C<sub>6</sub>H<sub>4</sub>O-, or -C<sub>6</sub>H<sub>4</sub>NHC(O)-;

m is an integer from 0 to 3;

k is an integer from 0 to 4; and

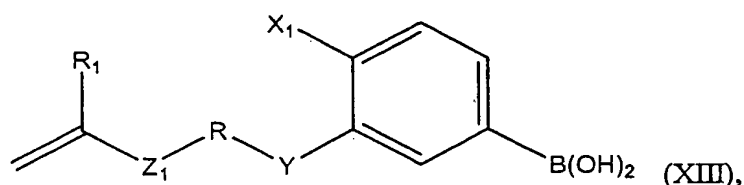
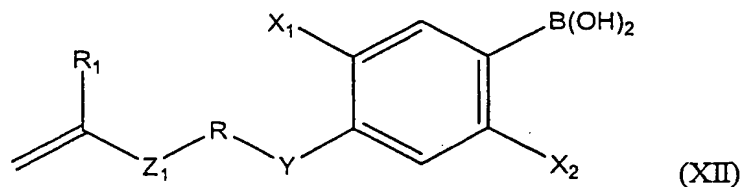
n is an integer from 0 to 5.

31. The method of Claim 30, further comprising the step of administering a fat binding polymer to the mammal.

32. The method of Claim 30, wherein R<sub>1</sub> is -H or -CH<sub>3</sub>; each X is independently -H, a halogen, nitrile, ester or sulfone.

33. The method of Claim 32, wherein said polymer is comprised of polymerized monomer units, wherein the monomer unit is represented by Structural Formula (XII) or (XIII):

-85-

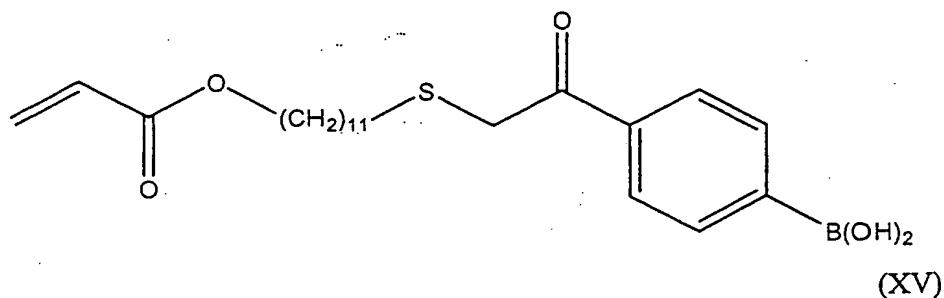
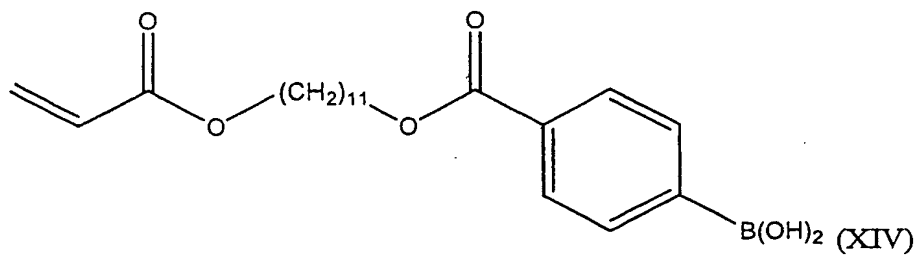


wherein  $X_1$  and  $X_2$  are each independently  $-H$ , a halogen or nitrile and  $Y$  is  $-C(O)Z-$  or  $-ZC(O)-$ .

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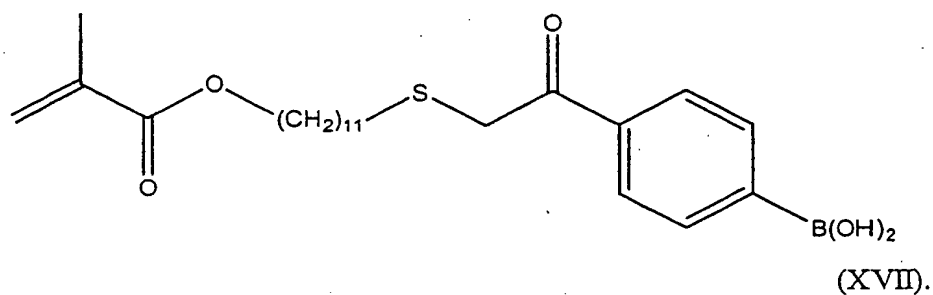
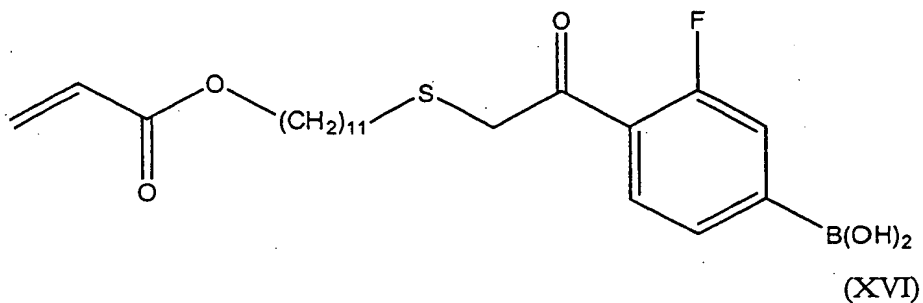
34. The method of Claim 33, wherein  $R$  is a C6-C12 alkylene group;  $R_1$  is  $-H$ ;  $X_1$  and  $X_2$  are each independently  $-H$  or  $-F$ ;  $Y$  is  $-OC(O)-$  or  $-SCH_2C(O)-$ ; and  $Z_1$  is  $-C(O)O-$ .

- 10 35. The method of Claim 34, wherein said polymer is comprised of polymerized monomer units, wherein the monomer unit is represented by Structural Formula (XIV), (XV), (XVI) or (XVII):



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36. The method of Claim 30, wherein the polymer is a copolymer.

37. The method of Claim 36, wherein the copolymer comprises a hydrophobic repeat unit.

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38. The method of Claim 36, wherein the copolymer comprises a cationic, anionic, zwitterionic, or neutral hydrophilic repeat unit.

39. The method of Claim 38, wherein the copolymer comprises an anionic repeat unit or a zwitterionic repeat unit.

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40. The method of Claim 39, wherein the anionic repeat unit or zwitterionic repeat unit comprises a sulfonic acid moiety or a salt thereof.

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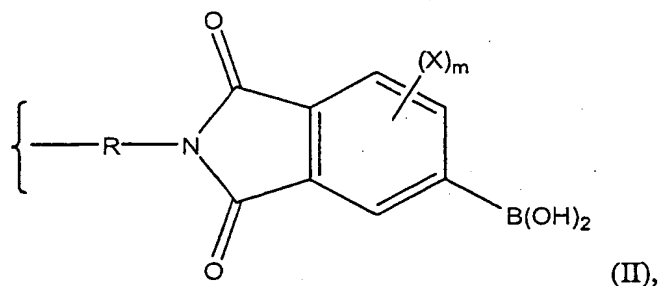
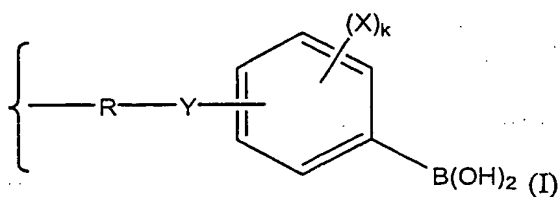
41. The method of Claim 40, wherein the anionic repeat unit is polymerized 2-acrylamido-2-methyl-1-propane sulfonic acid or a salt thereof; polymerized

styrene sulfonic acid or a salt thereof; or polymerized 3-acrylato-1-propane sulfonic acid or a salt thereof.

42. The method of Claim 38, wherein the copolymer is a block copolymer, a graft copolymer, a comb copolymer, a star copolymer, a dendrimer, a hyperbranched polymer, or a crosslinked hydrogel.
43. The method of Claim 33, wherein the polymer is a copolymer and wherein said copolymer comprises a hydrophobic repeat unit.
44. The method of Claim 33, wherein the polymer is a copolymer and wherein said copolymer comprises a cationic, anionic, zwitterionic, or neutral hydrophilic repeat unit.
45. The method of Claim 44, wherein the copolymer comprises an anionic repeat unit or a zwitterionic repeat unit.
46. The method of Claim 45, wherein the anionic repeat unit or zwitterionic repeat unit comprises a sulfonic acid moiety or a salt thereof.
47. The method of Claim 46, wherein the anionic repeat unit is polymerized 2-acrylamido-2-methyl-1-propane sulfonic acid or a salt thereof; polymerized styrene sulfonic acid or a salt thereof; or polymerized 3-acrylato-1-propane sulfonic acid or a salt thereof.
48. The method of Claim 47, wherein the copolymer is poly{4-(14'-acryloxy-3'-thia-1'-keto)tetradecyl phenyl boronic acid-co-potassium 3-sulfopropyl acrylate}}, poly{4-(14'-methacryloxy-3'-thia-1'-keto)tetradecyl phenyl boronic acid-co-sodium 4-styrene sulfonate}, poly{11-acryloxyundecyl(4-boronato)benzoate-co-sodium 2-acrylamido-2-methyl-1-propanesulfonate}, poly{4-(14'-acryloxy-3'-thia-1'-keto)tetradecyl phenyl boronic acid-co-

sodium 2-acrylamido-2-methyl-1-propanesulfonate}, or poly{4-(14'-acryloxy-3'-thia-1'-keto)tetradecyl phenyl boronic acid-co-sodium-4-styrene sulfonate}.

- 5 49. A method for reducing absorption of fat in a mammal in need of such treatment, comprising the step of orally administering to the mammal an effective amount of a polymer substituted with at least one group represented by Structural Formula (I) or (II):



wherein:

R is a C<sub>6</sub>-C<sub>30</sub> hydrocarbylene group optionally interrupted by one or more heteroatoms selected from the group consisting of NH, S and O; each X is independently -H, a substituted or unsubstituted alkyl group, an electron withdrawing group, or an electron donating group meta to the boronic acid moiety;

Y is -C(O)Z-, -ZC(O)- or -S(CH<sub>2</sub>)<sub>n</sub>-;

Z is a bond, CH<sub>2</sub>S, S, NH, or O;

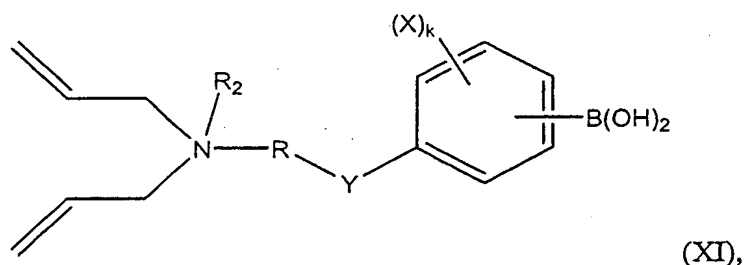
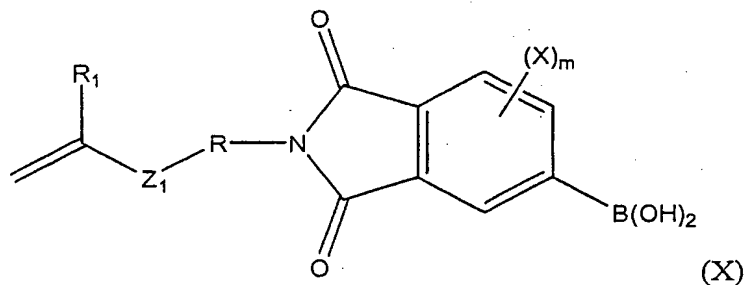
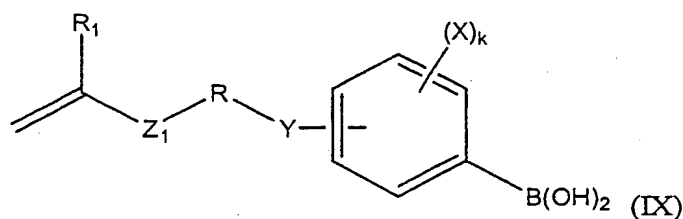
m is an integer from 0 to 3;

k is an integer from 0 to 4; and

n is an integer from 0 to 5.

50. The method of Claim 49, further comprising the step of administering a fat binding polymer to the mammal.

51. A method for reducing absorption of fat in a mammal in need of such treatment, comprising the step of orally administering to the mammal an effective amount of a polymer comprised of polymerized monomer units, wherein the monomer unit is represented by Structural Formula (IX), (X), or (XI):



wherein:

R is a C6-C30 hydrocarbylene group optionally interrupted by one or more heteroatoms selected from the group consisting of NH, S and O;

R<sub>1</sub> is -H or a lower alkyl group;

R<sub>2</sub> is -H, a lower alkyl group, or is absent;

each X is independently -H, a substituted or unsubstituted alkyl group, or an electron withdrawing group;



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Y is  $-C(O)Z-$ ,  $-ZC(O)-$  or  $-S(CH_2)_n-$ ;

Z is a bond,  $CH_2S$ , S, NH or O;

$Z_1$  is a bond,  $-C(O)NH-$ ,  $-C(O)O-$ ,  $-C_6H_4O-$ , or  $-C_6H_4NHC(O)-$ ;

m is an integer from 0 to 3;

5 k is an integer from 0 to 4; and

n is an integer from 0 to 5.

52. The method of Claim 51, further comprising the step of administering a fat binding polymer to the mammal.

10

53. The method of Claim 51, wherein the copolymer is poly{4-(14'-acryloxy-3'-thia-1'-keto)tetradecyl phenyl boronic acid-co-potassium 3-sulfopropyl acrylate}}, poly{4-(14'-methacryloxy-3'-thia-1'-keto)tetradecyl phenyl boronic acid-co-sodium 4-styrene sulfonate}, poly{11-acryloxyundecyl(4-boronato)bezoate-co-sodium 2-acrylamido-2-methyl-1-propanesulfonate},  
15 poly{4-(14'-acryloxy-3'-thia-1'-keto)tetradecyl phenyl boronic acid-co-sodium 2-acrylamido-2-methyl-1-propanesulfonate}, or poly{4-(14'-acryloxy-3'-thia-1'-keto)tetradecyl phenyl boronic acid-co-sodium-4-styrene sulfonate}.

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